IS 12198 (1987): Sprockets for Sugar Industry [FAD 2: Sugar Industry]

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UDC 621·85·051 : 5 : 664·1

(Reaffirmed 1999)

Indian Standard

SPECIFICATION FOR SPROCKETS FOR SUGAR INDUSTRY

Sugar Industry Sectional Committee, AFDC 8; Sugar Machinery and Components Subcommittee, AFDC 8 : 6 [Ref : Doc : AFDC 8 (2768)]

1. Scope — Specifies materials, dimensions and other requirements for sprockets for bagasse, carrier, cane carrier and feeder table chains used in sugar industry. This standard is applicable for sprockets of head shaft, tail shaft and idler shaft.

2. Material

2.1 Any of the following materials may be used in the manufacture of sprockets.

2.1.1 Cast steel conforming to Grade 20-40 of IS : 1030-1982 ' Specification for carbon steel castings for general engineering purposes (*third revision*)'.

2.1.2 For fabricated steel sprockets, mild steel conforming to IS : 226-1975 ' Specification for structural steel (standard quality) (*fifth revision*) ', may be used.

3. Terminology — The following definitions shall apply for the purpose of this standard.

3.1 *Pitch Diameter* — Diameter of the pitch circle that passes through the centres of the link pins as the chain is wrapped on the sprocket.

$$\text{Therefore, the pitch diameter} = \frac{\text{Chain pitch}}{\text{Sin (180° } \div \text{ Number of teeth)}}$$

3.2 *Bottom Diameter* — Diameter of a circle tangent to the curve, called the seating curve, at the bottom of the tooth gap. It is equivalent to the pitch diameter minus the diameter of the roller.

3.3 *Outside Diameter* — Diameter of the tips of teeth and is

$$= \text{Chain pitch [0·6 + Cot (180° } \div \text{ Number of teeth)]}$$

4. Dimensions

4.1 The bore of the sprocket shall be to suit the diameter of the solid shaft on which the sprocket is to be fitted.

4.2 The sprocket may have 12, 14 or 16 teeth.

4.3 The tooth profile of the sprockets shall be to suit the dimensions of cane carrier chain as specified in IS : 8465-1977 ' Specification for cane carrier chains' and bagasse carrier chains in accordance with IS : 8466-1977 ' Specification for bagasse carrier chains'.

4.4 The sprockets shall be to suit 150 mm pitch chain having rollers of 75 mm diameter and 35 mm width.

4.5 The finished dimensions of the sprockets shall be as given in Table 1.

TABLE 1 DIMENSIONS FOR SPROCKETS

(All dimensions in millimetres.)

Sl No.	Chain Pitch	Number of Teeth	Pitch Diameter *P*	Outside Diameter, *O*	Bottom Diameter *B*	Shroud Diameter, *S*	Flange Thickness *T*	Bose Diameter *D*	Sprockets for Head Shaft		Sprockets for Tail/Idler Shaft	
									Shroud Width, *W*	Boss Width, *G*	Shroud Width, *W*	Boss Width, *G*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
i)	150	12	579·6	649·8	504·6	485	32·0	280	45	100	36	80
ii)	150	14	674·1	747·1	599·1	580	32·0	300	45	100	36	80
iii)	150	16	768·9	844·0	693·9	674	32·0	320	50	110	40	85

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4.6 Outside diameter and the bottom diameter shall not vary by more than $^{+0}_{-1}$ mm and the flange thickness and shroud width shall not vary by more than ±1 mm of the values given in Table 1.

5. Other Requirements

5.1 The sprockets for head shafts shall be keyed to the shaft.

5.2 The sprockets for idler shafts shall be fitted with gun metal bush and shall be free to rotate on the shaft.

5.3 In case of tail shaft, one sprocket shall be keyed and the other provided with gun metal bush.

5.4 The sprockets shall have the central boss. The typical shape of the sprockets shall be as given in Fig. 1.

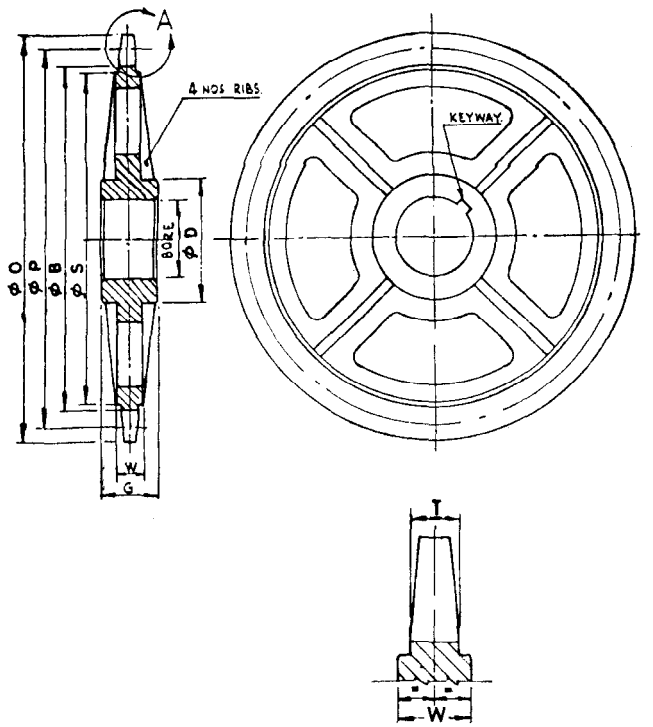

FIG. 1 SPROCKET FOR SUGAR INDUSTRY

6. Workmanship and Finish

6.1 The tooth profile ot the sprocket shall be machine cut by a hob milling or hobbing process.

6.2 Other surfaces of the flange and boss of the sprocket shall be machined after casting or fabrication, as the case may be. There shall be no black spots on the flange faces and the bore of the boss after machining.

6.3 The cast steel sprockets shall be free from blow holes, pits, burrs and other defects which are deterimental to its use.

6.4 The fabricated steel sprockets shall be free from blow hole/sundercuts in welding.

6.5 There shall be no sharp edges in the sprockets.

7. Marking

7.1 The following particulars shall be marked on the sprockets:

a) Manufacturer's name or recognized trade-mark, and

b) Number of teeth.

7.2 *Standard Marking* — Details available with the Bureau of Indian Standards.

8. Packing — As agreed to between the purchaser and the supplier.

9. Sampling for Lot Acceptance — As agreed to between the purchaser and the supplier.

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